

Request for Reconsideration
U.S. Patent Application No. 09/711,126

with an enzyme and a cationic polymer. Applicants affirm this election. However, applicants believe that the remaining subject matter, namely Groups II and III which encompass claims 14, 25, 26-30, and 40 can be examined at this time due to the clear relationship of this subject matter to the elected subject matter. There appears to be no serious burden on the part of the Examiner to examine these claims at the same time especially since the subject matter, as stated by the Examiner, are classified in the same class unit. Accordingly, since there appears to be no serious burden on the part of the Examiner, the MPEP instructs Examiners to proceed with examination of all claims. Accordingly, the Examiner is respectfully requested to examine all of the claims at this time and to withdraw the restriction requirement.

In the Office Action, at page 3, the Examiner rejects claims 1, 3, 4, 6, 7, 13, and 15-24 under 35 U.S.C. §103(a) as being unpatentable over EP 433 258 with or without Jaquess (U.S. Patent No. 5,356,800). The Examiner asserts that EP 433 258 teaches adding oxidizing enzymes at about the same time that a cationic polymer is added to the pulp. The Examiner asserts that the laccase of EP 433 258 does not differ from the enzyme used by the applicant. The Examiner then refers to Jaquess, which shows the use of the laccase and peroxidase as the enzyme. The Examiner then concludes that the laccase and peroxidase of EP 433 258 do not differ from the instant enzyme. For the following reasons, this rejection is respectfully traversed.

EP 433 258 relates to the production of mechanical pulp from a fibrous product, wherein the fibrous product is subjected to a chemical and/or enzymatic treatment in which a binding agent is linked with the lignin in a fibrous product. The bond between the binding agent and the fiber is created either by using oxidizing enzymes or oxidizing chemicals producing radicals. According to EP 433 258, one of the enzymes that can be used as part of pulp production is laccase. In one

example in EP 433 258, starch was added to a pulp in an amount of 5% and the pulp was stirred. Laccase was then diluted with water and added to the pulp mixture in an amount of 0.1% of the amount of pulp mixture.

However, EP 433 258 does not indicate any particular time with respect to the introduction of the cationic starch and the use of the enzymatic treatment. Thus, EP 433 258 does not teach or suggest the amount of time that expires between the introduction of the cationic starch and the introduction of the laccase. It would be unfair for the Examiner to assume that the starch and enzyme are added "at about the same time" without any mention in EP 433 258. Claim 1 of the present application clearly recites this limitation. The present application further describes the benefits of this step.

EP 433 258, by first adding a starch to the pulp, stirring it properly, and then adding an enzyme such as laccase, would not constitute, to one skilled in the art, adding cellulytic enzyme and a cationic polymer at "about the same time."

Also, there is no teaching or suggestion in EP 433 258 of using enzymes in an amount of from about 0.100% to about 0.001% based on the dry weight of the pulp, as recited in claim 4 of the present application. Moreover, there is no teaching or suggestion in EP 433 258 of pre-combining the cationic polymer and the enzyme or simultaneously adding the cationic polymer and the enzyme, as recited in claims 13 and 18 of the present application respectively. There is also no teaching or suggestion in EP 433 258 of using at least one cationic polymer having at least one nitrogen-containing polymer.

With respect to Jaquess, this patent does not overcome any of the serious deficiencies of the primary reference since it relates to stabilizing a formulation capable of enhancing the storage and

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shelf life of liquid enzymatic compositions as well as acting as a dispersant aid for industrial-processed water. Jaquess indicates the use of redox enzymes, which include peroxidase and laccase. There is no teaching or suggestion in Jaquess of using cellulytic enzyme and at least one cationic polymer at about the same time to form a treated pulp. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. §103(a) over EP 443 258 with or without Jaquess be withdrawn. Claims 3, 6, 15-17, and 19-24 are dependent directly or indirectly on claim 1; therefore, the reasons set forth above with respect to patentability of claim 1 would also apply to these claims. Claim 7 is dependent on claim 2, which is not rejected over EP 433 258 with or without Jaquess and further, claim 7 is dependent indirectly on claim 1; therefore, claim 7 is also allowable. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. §103(a) over EP 433 258 with or without Jaquess be withdrawn.

In the Office Action, at page 4, the Examiner rejects claims 1, 3, 4, 6, 8-11, 13, 15-22, 24, 31-36, 38, 39, 41, and 42 under 35 U.S.C. §103(a) as being unpatentable over Sarkar et al. (U.S. Patent No. 5,169,497) with or without Sarkar et al. (U.S. Patent No. 5,507,914). The Examiner asserts that Sarkar et al. '497 teaches treating all types of paper pulp with cellulolytic enzymes and cationic polymers. According to the Examiner, Table 1 in Sarkar et al. '497 uses enzyme treatment times of 10 to 60 minutes that read on "about the same time" in the claims of the present application. The Examiner also asserts that Sarkar et al. '497 indicates that the enzyme should react with the pulp for 10 minutes. The Examiner asserts that Sarkar et al. '497 does not indicate that a cationic polymer should not be added during the enzyme reaction. Therefore, according to the Examiner, it would have been especially obvious to add the enzyme and polymer at a time shorter than 10 minutes.

The Examiner then indicates that Sarkar et al. '497, like Sarkar et al. '914, teaches that both the polymer and the enzyme could be added at multiple addition points throughout the paper-making process. The Examiner also indicates that Sarkar et al. '497, like Sarkar et al. '914, teaches that the enzyme can be added at any chest prior to the refiner and in the machine chest, and that this is the same point where the cationic polymer is added. According to the Examiner, no criticality has been shown for adding the additives less than 10 minutes apart, e.g. simultaneously. The Examiner also specifically refers to claims 3 and 5 of Sarkar et al. '914 for a list of equivalent cationic polymers that can be used in the process. The Examiner concludes that it would have been obvious to add different, but equivalent, cationic polymers in each of the multiple feed points taught by Sarkar et al. '419. For the following reasons, this rejection is respectfully traversed.

With respect to Sarkar et al. '497, this patent relates to improving freeness of paper pulp that includes adding to the pulp a cellulolytic enzyme, allowing the pulp to contact the cellulolytic enzyme for at least 20 minutes, and adding 0.0007% of a water-soluble cationic polymer to form the treated pulp into paper. According to column 3 of Sarkar et al. '497, the invention requires that the pulp first be treated with the enzyme and then with the cationic polymer. Furthermore, Sarkar et al. '497, in column 3, indicates that the minimum treating time of the pulp with an enzyme is about 20 minutes. As seen in Table 1 of Sarkar et al. '497, the CSF values vary depending on the enzyme treatment time. Thus, Sarkar et al '497 clearly mandates that there be a waiting time of at least 20 minutes between the introduction of the cationic polymer and after the introduction of the enzyme. At least 20 minutes clearly would not be considered "about the same time" and certainly is not simultaneous. The Examiner's attention is directed to page 4 of the application with regard to the meaning of "about the same time". Clearly, 20 minutes is not "about the same time."

With regard to the Examiner's comment that no "criticality" has been shown with respect to adding the additives less than 10 minutes apart, the applicants and the undersigned respectfully point out to the Examiner that criticality is not a standard for patentability. The standard for patentability is whether the claimed invention is taught or suggested by the references applied by the Examiner. As the Examiner admits, each Sarkar et al. reference shows a delay in the treating time with the enzyme cationic polymer. Since 20 minutes is not "about the same time" and is not even close to "about the same time", it is clear Sarkar et al. does not teach or suggest the claimed invention. Criticality is not the issue with respect to this determination. Further, claims 16-18, which recited times less than 10 minutes are even different from the Examiner's interpretation of Sarkar et al. Accordingly, it is clear that the Sarkar et al. patents do not teach or suggest the claimed invention.

With respect to the Examiner's reliance on Table 1 of Sarkar et al. '497, it is respectfully pointed out that while this Table does make reference to 10 minutes, the reference as a whole, which is the standard with respect to reviewing a reference in determining the patentability of a claim, clearly states at column 3, lines 15-30 and elsewhere that the Sarkar et al. invention requires that the pulp first be treated with an enzyme and then with a cationic polymer and that the minimum treating time is about 20 minutes. Clearly, Sarkar et al. '497 mandates a reaction time of at least 20 minutes. In fact, any time less than that is clearly taught away by Sarkar et al. and furthermore would be considered a failure based on the comments set forth in Sarkar et al. '497.

Additionally, there is no mention in Sarkar et al. '497 of pre-combining a cationic polymer and an enzyme or simultaneously adding at least one cellulytic enzyme composition and at least one cationic polymer to the pulp as recited in claims 13 and 18 of the present application respectively.

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Instead, column 3 of Sarkar et al. '497 requires that the pulp first be treated with the enzyme and then with the cationic polymer. Furthermore, there is no mention in Sarkar et al. '497 of using a nitrogen-containing polymer or a cationic starch as recited in claims 22, 33, and 34 of the present application.

There is also no mention in Sarkar et al. '497 of first introducing a cationic polymer composition to the pulp and then introducing at least one cellulytic enzyme to form the pulp into paper, as recited in claim 31 of the present application. Instead, column 3 of Sarkar et al. '497 requires that the pulp first be treated with the enzyme and then with the cationic polymer. Because addition of the synthetic polymer effects the enzymatic reaction of the pulp by not allowing the enzyme to properly react with the pulp, one having skill in the art would not add the cationic polymer during the enzymatic reaction at a time shorter than 10 minutes.

Furthermore, Sarkar et al. '497 requires that the pulp first be treated with enzyme and then with the cationic polymer, which constitutes two different times. Therefore, this is not the same as "about the same time." Thus, for reasons set forth above, Sarkar et al. '497 clearly teaches away from claims 1 and 31 and the claims dependent thereon.

With respect to Sarkar et al. '914, this patent is very similar to Sarkar et al. '497 in that the purpose of the invention is to enhance the freeness of paper pulp. Sarkar et al. '914 further requires long delays between the introduction of the enzyme and the introduction of any cationic polymer. Accordingly, for these same reasons, Sarkar et al. '914 does not teach or suggest the claimed invention. Furthermore, there appears to be no mention in Sarkar et al. '914 of using a nitrogen-containing polymer or a starch. Claims 3, 4, 6, 8-11, 13, 15-22, 24, 31-36, 38, 39, 41, and 42 are dependent directly or indirectly on claims 1 or 31. Therefore, the reasons set forth above with

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respect to patentability of claims 1 and 31 would also apply to these claims. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. §103(a) over Sarkar et al. '497 with or without Sarkar '419 be withdrawn.

In the Office Action, at page 5, the Examiner rejects claims 2, 7, 12, and 23 under 35 U.S.C. §103(a) as being unpatentable over Sarkar et al. '497 with or without Sarkar et al. '914 as applied to claim 1 and further in view of EP 433 258. The Examiner asserts that EP 433 258 teaches that adding cationic starch or paper pulp during enzymatic treatment increases the strength of the paper. Therefore, according to the Examiner, it would have been obvious to add the cationic starch to the pulp of Sarkar et al. '497 to increase the paper strength as taught by EP 433 258. The Examiner also asserts that it would have been obvious to add the starch at various addition points in the same manner as the cationic starch and the enzyme in Sarkar et al. '914. For the following reasons, this rejection is respectfully traversed.

With respect to claims 2, 7, 12, and 23, these claims are dependent directly or indirectly on claim 1. As such, the reasons set forth above with respect to the patentability of claim 1 would also apply here. In addition, the Examiner has not explained how one skilled in the art could easily adapt the particular teachings set forth in EP 433 258 into either one of Sarkar et al. patents. Sarkar et al., in each patent, clearly requires a long delay time between the introduction of enzyme and the cationic polymer. Thus, any introduction of a cationic starch as shown in EP 433 258 could not easily be used in Sarkar et al. due to this delay time.

With respect to the Examiner's argument that it is obvious to add starch at various addition points, the Examiner provides no support for this conclusion. In addition, EP 433 258 clearly indicates that the starch is added prior to the enzyme. This is the opposite to the Sarkar et al.

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patents and thus would not make sense if the teaching of EP 433 258 were applied to Sarkar et al. Accordingly, the combining of EP 433 258 with Sarkar et al. simply does not make sense. As such, for the reasons set forth above, claims 2, 7, 12, and 23 are patentable. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. §103(a) over Sarkar et al. '497 with or without Sarkar et al. '419 in view of EP 433 258 be withdrawn.

The Examiner, then at page 5 of the Office Action, rejects claims 5 and 37 under 35 U.S.C. §103(a) as being unpatentable over Sarkar et al. '497 with or without Sarkar et al. '914 as applied to claim 1, and further in view of WO 99/43780. The Examiner asserts that WO 99/43780 teaches stabilizing the enzymes during pulp treatment by using the enzymes in combination with a polyamide oligomer. Therefore, the Examiner asserts that it would have been obvious to add the polyamide oligomer of WO 99/43780 to stabilize the enzymes of Sarkar et al. '497. For the following reasons, this rejection is respectfully traversed.

With respect to WO 99/43780, this patent relates to improving the stability of shelf life of enzymes by using polyamide oligomers. Claims 5 and 37 are dependent directly on claims 1 and 31. Therefore, the reasons set forth above with respect to the patentability of those claims would also apply here. Accordingly, even if WO 99/43780 was combinable with either Sarkar et al. patent, this combination still would not teach or suggest the claimed invention since none of the references applied by the Examiner teach the method of claim 5 or 37 which is directly dependent on claim 1 and recites that the cationic polymer and cellulytic enzyme composition are added at about the same time. As explained above, none of the references relied upon by the Examiner teach or suggest this step. It is respectfully requested that the rejection under 35 U.S.C. §103(a) over Sarkar et al. '497 with or without Sarkar et al. '419 in view of WO 99/43780 be withdrawn.

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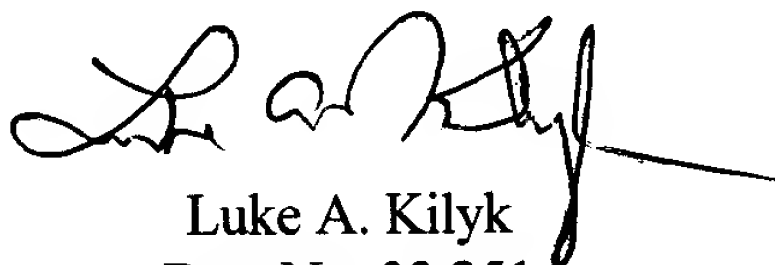
If there are any remaining questions, the Examiner is encouraged to contact the undersigned by telephone.

CONCLUSION

In view of the following remarks, the applicants respectfully request consideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,


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